Manure Management Approaches and Programs

DANE COUNTY

Kathleen M. Falk
County Executive

For Immediate Release
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County Executive Falk Announces Next Steps for Manure Digester

Supervisor Richmond will announce accompanying board resolution

Madison – Dane County Executive Kathleen Falk and Dane County Supervisor and Chair of the Environmental, Agriculture and Natural Resources Committee Kyle Richmond today announced steps toward the construction of a manure digester to help farmers use manure to generate energy and prevent liquid manure spills that harm our lakes and streams. At the press conference Falk announced that the county has designated $71,111 in non-tax dollars toward a feasibility study for the construction of a manure digester.

Manure digesters can provide three major positive impacts:

- Helps protect clean water and fish
- Produces energy
- Provides fertilizer and bedding for farmers

Digesters help farmers with an alternative and additional outlets to liquid manure spreading in the winter, which can result in harmful spills to lakes and streams. Also, manure digesters generate energy, in the form of methane gas, which can be burned to produce heat or electricity.

The County first entertained the idea of a manure digester as a result of several significant liquid manure spills this past winter, resulting in several fish kills in the area and the depositing of between 2,400 pounds of phosphorous into Lake Mendota. In March, County Executive Falk and Lakes and Watershed Commission Chair Brett Hulsey appointed a task force comprised of area farmers, environmentalists and other County Board supervisors to evaluate the risks associated with winter spreading of liquid manure and make recommendations. One recommendation was to do a feasibility study of a digester.

In addition, Richmond will introduce an accompanying board resolution at the County Board meeting Thursday evening and the Dane County Agriculture Advisory Council has reserved $20,000 for a feasibility study for manure digesters.

- more -

“A manure digester could be of help to our area farmers, and is a positive step for all of us to protect out lakes and streams,” said Falk. “This money allows us to determine if manure digesters can work in Dane County, and if so, what are the best business models and locations for them.”

"Manure digesters show promise at helping farmers come up with manure storage, capturing energy and utilizing manure as a resource rather than a nuisance," said Hulsey.

"This proposal is loaded with potential, and not only to protect water resources and develop the local economy," Richmond said. "It's also got the potential to protect agricultural land, produce alternative energy, and cut transportation costs. It's a win for both rural and urban residents."

The money comes from a payment to Dane County from the American Transmission Company (ATC) for a future transmission line project. Under state law, ATC is required to pay the county a one-time environmental impact fee in the amount of $71,111, which must be used for an environmental program.

# # #

D H E C
PROMOTE PROTECT PROSPER

Standard Application Form for Agricultural Manure Brokers

Please Type or Print

Section 1 – OPERATION INFORMATION

DATE _____ OPERATION NUMBER ND _____

NEW _____ OR EXPANDING _____ OPERATION

IF EXPANDING: PERMIT NUMBER _____ DATE ISSUED _____

WHAT COUNTY IS THIS BROKERING OPERATION BASED? _____

BROKER'S NAME _____

ADDRESS _____

PHONE NUMBER (WORK) _____ (HOME) _____ (CELL/BEEPER) _____

PLAN PREPARER _____

TITLE/SC REGISTRATION NUMBER _____

ADDRESS _____

PHONE NUMBER (WORK) _____ (FAX) _____ (CELL/BEEPER) _____

Section 2 – MANURE HANDLING & TREATMENT

MANURE HANDLING: DRY or WET

IS A STORAGE OR TREATMENT FACILITY BEING PROPOSED FOR THIS OPERATION? YES or NO

TREATMENT PROPOSED _____

ARE YOU APPLYING FOR EXCEPTIONAL QUALITY COMPOST QUALIFICATION? YES or NO

ARE YOU A CERTIFIED MANURE MANAGER? YES or NO TRAINING DATE _____

Section 3 – MANURE UTILIZATION AREAS

Please fill out this chart for any fields that are being added for routine manure applications. At the time of permit renewal, the broker must add any fields that receive manure routinely (once/yr or more frequent). For more fields please make copies of this page and add as additional sheets.

SEPARATION DISTANCES:	**Tract #→**							
	Field #→							
POTABLE WELL	200 ft							
WATERS OF THE STATE LOCATED DOWNSLOPE	100 ft							
EPHEMERAL & INTERMIT. STREAMS DOWNSLOPE	100 ft*							
DITCHES DOWNSLOPE	50 ft							
RESIDENCE	300 ft**							

MANURE UTILIZATION AREA TABLE CONTINUED:

SEPARATION DISTANCES:	**Tract #→**							
	Field #→							
POTABLE WELL	200 ft							
WATERS OF THE STATE LOCATED DOWNSLOPE	100 ft							
EPHEMERAL & INTERMIT. STREAMS DOWNSLOPE	100 ft*							
DITCHES DOWNSLOPE	50 ft							
RESIDENCE	300 ft**							

*****If the method of application is spray application or ground surface application. Reduced to 75 ft for incorporated manure, and 50 ft for injection or incorporation within 24 hours.

******If method of application is injection or immediate incorporation, then manure may be spread to the property line. All residence setbacks may be reduced by consent of the owner of the residence.

NOTE: PROPERTY OWNER INFORMATION AND LAND APPLICATION CONTRACTS MUST BE PROVIDED FOR EACH FIELD.

Section 4 – PERMIT APPLICATION SUBMITTAL REQUIREMENTS

SUBMITTAL PACKAGE SHOULD INCLUDE 2 COPIES OF THE FOLLOWING ITEMS (check each item submitted):

____ 1. ORIGINAL APPLICATION (and 1 copy of the original)
____ 2. BROKER MANAGEMENT PLAN
   a. Manure Broker Operation Description
   b. Design Calculations and Construction Details for treatment/storage structure, including exact location and design information.
   c. General Crop Management Plan
   d. Type of Waste Transport/Spreading Equipment
   e. Manure Utilization Area Information and Maps (if adding routine sites to plan)
   f. Soils Information (maps & descriptions)
   g. Location maps (showing treatment/storage structure, and all fields being added to plan)
____ 3. ODOR ABATEMENT PLAN
____ 4. VECTOR ABATEMENT PLAN
____ 5. SOIL MONITORING PLAN
____ 6. SAMPLE CONTRACT TO BE USED WITH PRODUCERS FOR CONTRACT DISPOSAL OF MANURE
____ 7. SAMPLE CONTRACT FOR MANURE TRANSFERS TO PERSONS ACCEPTING MANURE FROM BROKER
____ 8. WRITTEN CONSENT FOR WAIVING OR REDUCING SETBACKS FOR TREATMENT/STORAGE STRUCTURE (if applicable)
___ 9. APPLICATION FEE: See instructions on the back of this page for amount.
___ 10. ANNUAL OPERATING FEE: See instructions for amount (first year's fee must be submitted before permit is issued).

Section 5 - CERTIFICATION

I HEREBY CERTIFY THAT ALL OPERATIONS, MAINTENANCE AND ASSOCIATED ACTIVITY PERTAINING TO THIS SITE SHALL BE ACCOMPLISHED PURSUANT TO AND IN KEEPING WITH THE TERMS AND CONDITIONS OF THE APPROVED PLANS. I HAVE READ THIS APPLICATION AND AGREE TO THE REQUIREMENTS AND CONDITIONS THAT ARE CONTAINED WITHIN. THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I HEREBY GRANT AUTHORIZATION TO THE DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL THE RIGHT OF ACCESS TO THE SITE AT ALL REASONABLE HOURS FOR THE PURPOSE OF SAMPLING AND ON SITE INSPECTIONS.

Printed Name/Broker _____ Signature/Broker _____

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THAT THE DESIGN IS CONSISTENT WITH THE REQUIREMENTS OF TITLE 48, CHAPTER 1 OF THE 1987 SC CODE OF LAWS, AND PURSUANT REGULATION 61-43 AND APPROPRIATE NRCS STANDARDS.

Printed Name/Plan Preparer _____ Signature/Plan Preparer _____

APPLICATION INSTRUCTIONS - Agricultural Manure Broker Permit

Purpose:

This form must be completed as part of an application package submitted for DHEC approval of proposed NEW or EXPANDING agricultural manure broker operations. The required items should be checked to ensure that a complete administrative package has been submitted. If a complete administrative package is not submitted, the entire project may be returned.

Item-by-Item Instructions:

Section 1 - Contact Information. *Date*: Enter the date of application. *Operation Number*: Leave blank, Department will assign a facility number. *New or Expanding Operations: If* this application is for an existing operation that has previously obtained a agricultural manure broker permit from DHEC, then indicate by checking EXPANDING or NEW of this is a new operation. If EXPANDING, provide the following: *Permit Number;* Provide the permit number for the permitted operation, and *Issue Date;* Provide the date on which DHEC issued the permit. *Farm Name*: Give the name of the proposed agricultural manure broker operation. *County*: Give the county in which the proposed operation is to be based. *Broker's Name, Address, and Phone Number*: Enter the name, address and phone number of the person who will be responsible for the daily operations. *Plan preparer*: Enter the name of the engineer or NRCS representative who has prepared the management plan. *Title/SC Registration Number*: Enter the title and SC registration number (if applicable) of the person responsible for the design of the Broker Management plan. *Address, Phone Number*: Enter the business address and phone number for the plan preparer.

Section 2 – Manure Handling & Treatment. *Manure Handling*: Circle DRY or WET to indicate the type of manure handling for this operation. *ManureTreatment/Storage*: Circle YES or NO to indicate whether a manure treatment or storage facility is being proposed for this operation and give a description of the treatment proposed. *Exceptional Quality Compost*: Circle YES or NO to indicate whether you are applying for the manure treated at your facility to qualify as exceptional quality compost (must meet product quality standards outlined in Part 300 of R.61-43). *Trained Manure Manager*: Circle YES or NO to indicate whether the broker has attended the certified manure manager's training and certification class conducted by Clemson Extension Service. Indicate the date on which the certification or training was obtained.

Section 3 – Manure Utilization Area Information. This table outlines the required setbacks for manure utilization areas. This table should be filled out if the broker is adding permanent manure utilization areas to his management plan. Please enter a field identification information for each field, tract number, field number; and the actual separation distance for each manure application field in the appropriate spaces. Make copies of this section if you need additional tables for the field information.

Section 4 – Permit Application Submittal Requirements. Check each item that is being submitted as a part of this application. *All* items under Section 4 should be submitted to DHEC for review. In accordance with the **Environmental Protection Fee Reg. 61-30**, an application fee is required for submitting an Application for agricultural animal facilities. There is a requirement that DHEC meet certain time frames when processing permit applications. The "DHEC Time" is not the total time but rather it is the time that DHEC spends working on an application after a complete package is received. "DHEC Time" does not include the time an applicant takes to supply any information that may be requested by DHEC. The fees and time frames are as follows:

Agricultural Permit Application Fees

Facility Type	***DHEC Time***	***Fee***
Manure Broker Operations	90 days	$165

Note: Make **CHECKS** payable to SC DHEC/Bureau of Finance.

Regulation R61-30 also authorizes DHEC to assess annual environmental operating permit fees for certain permits. All new facilities must submit payment for the first years operating fee before the permit to construct is issued. The operating fee is $75 per year for manure broker operations.

Section 5 – Certification. For this section, please read the certification statements and have the appropriate person(s) sign the certification.

DHEC Processing Procedures:

Two (2) copies of the submittal package are submitted to DHEC. After Permitting, DHEC files the original in the main project file, located in DHEC's central office. DHEC sends a copy of the approved package to the appropriate EQC District Office.

Manure Broker Permit Application Submittal Requirements

____ 1. A *manure handling and transporting* plan that details the methods and standard operating procedures for the manure clean-out, pick-up, transport, disposal, drop-off, storage, etc. that will be involved in this operation.

- Should the wastes be stockpiled more than three (3) days, the litter must be stored on a concrete pad and/or other acceptable means covered with black plastic to prevent fly breeding. A four (4) inch diameter hole should be cut in the plastic at the top of the pile and vented with screen wire to let the gases escape. Soil should cover the edges of the plastic to secure it down.
- Use all sanitary precautions in the collection, storage, transportation, and spreading of waste. The body of all vehicles transporting waste shall be wholly enclosed, or shall at all times, while in transit, be kept covered with a canvas cover provided with eyelets and rope tie-downs, or any other approved method which will prevent blowing or spillage of loose material or liquids. Should any spillage occur during the transportation of the waste, the owner/operator will take immediate steps to clean up the waste.
- A signed contract between the permit applicant and the landowner detailing the liability for the land application must be obtained. Each contract should include the name, address, and telephone number of the individuals that will accept the animal waste. The individual accepting the waste is responsible for transporting, handling and spreading the waste in compliance with DHEC regulation 61-43. Sample contract enclosed.

____ 2. The following *Waste Utilization Area Requirements* should be included in the waste management plan and should be included in the contract information package that is distributed to any receiver of animal waste:

- Animal waste shall not be applied to land that is saturated from recent precipitation, flooded, frozen, or snow-covered. Animal waste shall not be applied during inclement weather.
- Animal waste must not be placed directly in or allowed to come into contact with groundwater.
- The land application equipment, when used more than once per year, should be calibrated at least annually by the farmer; to ensure that proper application rates are being attained.
- The amount of animal waste to be land applied should be determined using the animal waste analysis information provided, so that the proper application rate (normally the agronomic rate) is met.
- A contractor who supplies animal waste to another person for land application shall provide the person who will land apply the waste with the concentration of plant available nitrogen and the concentration of all other constituents listed in the permit.
- Animal waste shall not be applied to or discharged onto land surface when the vertical separation between the waste and the water table is less than 1.5 feet.
- Waste utilization area slopes shall not exceed 10 percent unless approved by the Department. The Department may require that slopes be less than 10% based on site conditions.
- Follow these procedures when land applying waste:
  - (a) Wastes must not be applied within 100 feet of waterways,streams, lakes, springs, or ponds unless the method of application is:

Spray irrigation	100 feet
Incorporation	75 feet (within 24hrs, reduced to 50 feet)
Injection	50 feet

  - (b) Waste should not be spread in the floodplain if there is danger of a major runoff event. If waste is spread in the floodplain when there is no danger of major runoff event, waste must be incorporated immediately.
  - (c) Use lower rates of application on shallow soils over bedrock to reduce possible pollution of groundwater.

(d) On slopes over 300 feet long in cropland, install terraces or surface drains to trap sediment and increase flow time to outlet.

(e) Waste must not be spread within 100 feet of any potable wells (excluding the applicant's well).

(f) Waste must not be spread within 50 feet of ditches and swales that discharge to the waters of the state, including ephemeral and intermittent streams.

(g) No person shall apply animal waste to land if any of the following cumulative loading rates have been reached:

Arsenic	37 lbs/acre
Copper	1339 lbs/acre
Zinc	2499 lbs/acre

(h) No person shall apply animal waste to land during a 365 day period once the following annual application rates have been reached during that period:

Arsenic	1.8 lbs/acre
Copper	67 lbs/acre
Zinc	125 lbs/acre

(i) Waste must not be spread within 200 feet of a property line, if there is an inhabited dwelling within 1000 feet. Waste may be spread up to 100 feet from the property line with written approval from the adjacent property owner. If there is no residence within 1000 feet, waste may be spread up to the property line.

- Apply waste (solid or liquid) only when weather and soil conditions are favorable and when prevailing winds are blowing away from nearby opposite dwellings. Any waste that contains fly larvae and fly pupae must be disked into the ground immediately or be treated with an approved and effective fly control method. If the waste disposal on a land application area creates a fly problem for the community, the owner and or applicator will be responsible for the control of all flies resulting from the application of the waste. Assistance in fly control and fly problem prevention can be obtained through contact with the local Clemson Extension Service Office.
- Allow a minimum of 4-week recovery period between applications. Sufficient land must be available to rotate applications to utilize nutrients in waste for crop productions.
- Waste should not be applied to cropland more than 30 days before planting or during dormant periods for perennial species.

____ 3. *Animal Waste Analysis Information* (as appropriate) shall be obtained from each producer and provided to any person who receives animal waste as follows:

- Dry animal waste shall be analyzed for:

(a) Nutrients (on a dry weight basis).

(1) Total Kjeldahl Nitrogen (mg/kg).
(2) Total inorganic nitrogen (mg/kg).
(3) Total ammonia nitrogen (mg/kg) and Total nitrate , nitrogen (mg/kg).
(4) P_2O_5 (mg/kg).
(5) K_2O (mg/kg).
(6) Calcium Carbonate equivalency (if animal waste is alkaline stabilized).

(b) Constituents (on a dry weight basis).

(1) Arsenic (mg/kg).
(2) Copper (mg/kg).
(3) Zinc (mg/kg).

____ 4. *Soil Monitoring Information*. Soil monitoring information shall be obtained for all waste utilization areas and shall include the following information:

- The results of the most recent soil sampling (in the root zone) event for each field. Each field should be sampled prior to waste application and the analysis results should be provided to the broker at the time of sale.
- This information should be provided on the contract or an analysis result sheet can be attached to the contract.

____ 5. *Waste utilization area* information shall be included for any land application contract. The following information should be shown on a soils map, topographic map, county map, plat, FSA map, OR a site plan sketch:

- Location of waste utilization area(s) with roads and highways clearly labeled.
- Manure application areas with setback or buffers areas outlined.
- Location of all known water supply wells within 100 feet of the property lines.
- Location of adjacent surface waters, including ditches, streams, creeks, and ponds.

____ 6. The following *Records* should be kept for eight years at a specified location and made available to the Department for review upon request:

- Contracts and any attached analyses, location maps or other information.
- Waste analysis reports.
- Documents identifying the name and address of each farm which animal waste is purchased.

____ 7. The information should be *reported* to the Department on an annual basis:

- A balance sheet listing all the farms that animal waste was purchased from and the amount purchased at each farm. The second part should list all the farms that purchased animal waste and the amount purchased. A sample balance sheet will be provided.

____ 8. Application and annual operating fees must be paid.

Story of the Week

Federal grant allows ODA use of automated weather stations to protect water quality

Weather data to forecast manure spreading opportunities

April 21, 2004... A good local weather forecast can tell you when to take an umbrella, when to wear sunscreen, and now perhaps when to spread manure. At least that's the hope of the Oregon Department of Agriculture as it begins deploying ten automated weather stations throughout parts of western Oregon. A $44,000 water quality grant from the U.S. Environmental Protection Agency is helping ODA and the dairy industry ultimately create something called "a manure spreading index."

"We're very excited about this," says Jim Krahn of the Oregon Dairy Farmers' Association. "It's not the total answer, but it gives us one more tool to make good decisions about manure application."

As a generally accepted and encouraged management practice, confined animal feeding operations (CAFOs) agronomically apply manure to pastures and crop fields. Application of animal waste should take place when weather conditions are optimum. A rainy day could wash that waste into a nearby stream or river. Any help the weatherman can give to a CAFO operator would be welcome.

That's where ODA meteorologist Jim Little comes in. He has helped put together a demonstration project that utilizes all sorts of weather data to help establish the manure spreading index. The data can tell a specific farmer in a specific location whether or not conditions are okay for application of animal waste. It can also tell the farmer when conditions might be better.

"Under this system, operators won't have to look at a lot of meteorological mumbo-jumbo, but simply go to our website to find out when is a good time to spread manure," says Little.

The ten weather stations should all be up and operating sometime this summer. They are located up and down the Willamette Valley and along the Oregon Coast. The 10-foot tall, roof mounted weather stations will supplement existing ones that are often found in local airports. All will provide real time temperature, humidity, wind direction, wind speed, and rainfall via ODA's website. Some of the smaller existing automated weather stations only provide that kind of data once a day. As every farmer knows, conditions can change by the minute. So the information provided must be current.

"You can go to the web right now and find tomorrow's forecast, but it may not be as detailed as you need to make a quick decision on manure application" says Little, who spent several years as a television meteorologist in Portland before coming to ODA. "We should be getting some very detailed and precise weather forecasts out of the data we collect from these stations."

That same kind of micro-weather data can be useful to others in agriculture who might need to make a decision on pesticide applications or even more basic management plans, such as when to plant and when to harvest. A similar but more extensive network already exists in Oklahoma.

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"They have 119 of these kinds of weather stations– at least one in every county," says Little. "In Oklahoma, farmers saw a need for this and so did their legislature, which put some money towards establishing this very dense network of precise weather information."

In California, specific weather data has helped establish a "powdery mildew index" for the state's wine industry. Vintners are given the type of information they need to make decisions on when to apply fungicide products on wine grapes to protect against powdery mildew. The same kind of index could be used for Oregon's wine industry once the precise data is able to be collected.

Weather data forms the backbone of ODA's smoke management program, which regulates field burning for Oregon's grass seed industry. Unlike the smoke management program, however, the manure spreading index will not mandate when operators can or cannot apply animal waste. The information will be strictly advisory.

Oregon's dairy industry can envision the weather information being helpful with another animal waste-related issue.

"This project has potential from an odor standpoint," says Krahn. "The information can help us determine when an air inversion will occur. Under those conditions, the odor from a dairy doesn't dissipate, it just hangs there. If I live close to my neighbor and I have the choice of applying animal waste on a Monday when there is an air inversion, or on a Wednesday when there is not an inversion, my neighbors will be a lot happier if I wait until Wednesday."

If the ten new weather stations do their job, the system and any ongoing program could ultimately be used for interests that go beyond agriculture.

" This kind of data can be useful to recreational interests," says Little. "It will be useful to those who operate private airplanes. It will be useful to salmon fishermen who, for example, are going to check the rain gauges to see if there is enough water coming down some of those coastal streams to move salmon upstream. Once this database gets going, I think it will be valuable to a lot of Oregonians."

But first, the weather data system will attempt to provide assistance in the water quality arena. After all, that's what the original EPA grant is intended to satisfy.

"If these weather stations and the system we develop can help even a few CAFO operators make better decisions, it will all be worth it," says John Byers of ODA's Natural Resources Division. Byers has helped Little manually install the automated weather stations purchased by the EPA funds. "Weather forecasts are available every minute of every day, but the kind of information we want to provide at the level of detail we plan to have should be more useful to our farmers and ranchers."

By the time the rain returns in the fall, that useful information should be available.

For more information, contact Jim Little at (503) 986-4702 or John Byers at (503) 986-4718.

GREEN BAY, WISCONSIN

GREEN BAY PRESS-GAZETTE
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LOCAL NEWS

Posted Apr. 25, 2005

Farmers hope to put heat on manure stink

Brothers to test furnace that cuts waste by turning it into ash

By Paul Brinkmann
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GREENLEAF — A local dairy farm is generating high hopes with plans to build a manure incinerator, possibly the first of its kind in the nation.

If successful, the $3.9 million facility at Wiese Bros. Farms could eliminate a growing problem on many large dairy farms — the disposal of liquid manure.

"There's no doubt about it, the agriculture community is watching," said John Katers, a professor of natural and applied sciences at the University of Wisconsin-Green Bay. "I've seen some of the designs, and I have some concerns about possible unknowns in the process, but if it works, it would be a good solution."

The possible breakthrough comes at a crossroads in Wisconsin dairy farming, when California has pulled far ahead in milk production and farms are getting larger and larger. The biggest farms have struggled to manage millions of gallons of liquid manure by holding it in lagoons until it can be spread on farm fields. The systems have caused friction over odor and groundwater runoff in many rural communities.

Mark and David Wiese run one of Brown County's largest dairy farms, with almost 3,000 cows. They're proud of their tradition of running a clean farm, but they don't enjoy handling the manure.

"Ask any dairy farmer if he'd like to avoid handling manure, and he'll say 'yes,'" Mark Wiese said.

About a year ago, Kaukauna engineering firm Skill Associates approached the Wieses with a conceptual design for a biomass boiler fueled by a manure incinerator. The end products would be ash rich in potassium and phosphorus, and electricity.

The Wieses were so impressed that they signed up as Skill's first customers. Together with Skill president Paul Schneider and engineer Wally Lasonde, they got a $470,000 grant from the U.S. Department of Agriculture to produce final designs and run tests on the concept. The concept has a registered trademark as the "Elimanure" system, patents

'Elimanure' system

Wiese Bros. Farms in Greenleaf plans to build a new facility to burn its manure, basically eliminating the concentrated storage and odors associated with large dairy farms.

A layman's version of the process:

• Manure enters large drying units, where it's stirred by giant augers and mixed with hot air to reach 160 degrees Fahrenheit. Some escaping water vapor would be vented off. The heat theoretically kills all pathogens or germs in the material.

• After drying, some manure is recycled as bedding material in barns or fertilizer for fields.

The remainder of the dried manure continues into a biomass boiler.

• In the boiler's incinerator, the manure burns at temperatures of 2,000 degrees Fahrenheit. The heat runs the boilers, which produces steam, which turns electricity-generating turbines.

The burning obliterates the nitrogen content and greatly reduces the overall mass, leaving a gray powdery ash with phosphorus and potassium.

pending.

The incinerator/boiler would be different than anaerobic digesters, which have appeared on dozens of big farms in Wisconsin and California. The digesters burn gas from liquid manure to produce electricity, but they do little to reduce the volume of material, and the process can produce strong odors.

• A propane burner would be needed in the first two hours. Afterward, the operation would be self-sustaining, with only manure for fuel.

Source: Skill Associates Inc. of Kaukauna and Wiese Bros. Farms of Greenleaf

The Elimanure system would theoretically be totally aerobic, meaning air would be constantly introduced to the drying manure, thus eliminating many odors. The Wieses also hope to siphon off some of the dried manure for reuse as bedding in barn stalls. Drying would occur at temperatures of 160 degrees Fahrenheit, high enough to kill disease-causing pathogens.

According to Skill's estimates, a 3,000-cow farm could save $1.3 million a year with the system, primarily by eliminating expensive hauling of liquid manure and by producing electricity. If the federal government kicks in alternative energy tax credits, the savings could be more.

The Wieses acknowledge they're taking a risk. Besides the grant, they said they've invested a large sum in the process already.

"Even if we only break even, I'll be happy," Mark Wiese said. "We haul manure responsibly, but it's a huge liability and a hassle."

A 3,000-cow farm produces about 156,000 pounds of manure per day. With incineration, that could be reduced to 300 pounds of ash, according to Lasonde, who formerly worked in the paper industry.

The only trial of the Elimanure concepts was performed with manure in wood pulp incinerators. Lasonde said smokestack emissions were well below the federal pollution limits.

The Wieses have presented their plans to town of Holland officials and staff at the Wisconsin Department of Natural Resources. The system would require a modification to their existing pollutant discharge permit and possibly a new air permit.

Rick Wulk, DNR air management leader for the northeast region, said he believes the Wieses will need a permit for air emissions under the state's version of federal rule AP42. Lasonde, however, said he believes the boiler size and emissions will be below federal requirements.

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MINNESOTA DEPARTMENT OF AGRICULTURE
FROM THE FARM TO YOUR FAMILY

Commercial Animal Waste Technician Licensing

Approved Commercial Animal Waste Technician Recertification Workshops

- To be announced.

Who Needs A License

The new Minnesota law says *"a person may not manage or apply animal waste for hire without a valid commercial animal waste technician license."* The following are examples where a license is required:

- If you charge money to apply animal manure, then you **DO** need a commercial animal waste technician license.
- If you operate a business that manages the application of animal manure, any employee who supervises field work must have a license.

Who Does Not Need a License

The focus of legislators when the law was passed, was on *commercial* applicators. The following are examples where a license is not needed:

- Farmers who apply manure to their own fields **DO NOT** need a license
- Hired hands do not need a license if they apply animal manure to land owned or managed by their employer.
- A person who works for a licensed commercial animal waste technician does not need a license, provided they work under the supervision of their licensed employer.

How To Obtain a License

Follow these four easy steps to apply:

1. **Application:** Contact the Minnesota Department of Agriculture to obtain an **application form**. Be sure to fill in your complete name and address. Also tell us for which category you would like to apply - solid manure, liquid manure or both. The Minnesota Department of Agriculture will then mail you licensing forms and a study manual. If you are applying for both categories, you will receive two study manuals. There is no charge for the manuals, however *when you return the application forms, you will be asked to include a $50.00 check.* This non-refundable application fee is the same whether you are applying for liquid manure, solid manure or both categories. You will also be required to provide proof of financial responsibility. Further details will be included in your application packet.

2. **Preparation:** There are two manuals you will receive when you send in your application, one is for solid manure applicators and one is for liquid manure applicators. The manuals were developed by the Minnesota Extension Service in conjunction with an advisory group of manure application experts. The study manuals provide a detailed, in-depth guide to proper animal waste management and application. Other training options may be available, but they are not required. The most important task is to become familiar with the study manuals. All test questions on the test will come from material found in the study manuals.

3. **Examination:** In order for a license to be granted, you must pass the test. For the solid manure category, the test will focus on solid manure issues. For the liquid manure category, the test focuses on liquid manure specifics. You must take both tests in order to be licensed for both categories. Each test contains 100 multiple-choice questions. You will be able to use your study manual during the test - these are "open book" exams - but the test is not easy. You will be expected to have studied your manuals beforehand, and the test will be monitored. The tests are also available on CD-Rom, which will give you expanded options for testing locations and dates.

4. **Renewal:** A Commercial Animal Waste Technician License is valid for three years. However, in order to renew your license, you must attend continuing education workshops in at least two of those three years. The one day workshops will provide classroom instruction and hands-on training. Workshops are geared towards the specific license type and generally last 4-6 hours. You will receive more information about training workshops after you apply for a license. You will be expected to verify which workshops

Related Links

- Application for Commercial Animal Waste Technician License (New licenses only) (PDF: 28 KB / 1 page)
- Contacts for CAWT Testing
- Financial Responsibilities (PDF: 55 KB / 1 page)
- Licensed Commercial Animal Waste Technicians
- Locations of Licensed Commercial Animal Waste Technicians
- Manure PowerPoint Presentation (MS PPT 2000 / 4.07 MB)
- Manure PowerPoint Presentation (MS PPT 4.0 / 6 MB)
- Private Applicator Fumigation Endorsement Program
- Wisconsin Custom Manure Haulers (PDF: 214 KB / 6 pages)
- Workers' Compensation Insurance Information (PDF: 47 KB / 1 page)

you attended in order to renew your license. Only workshops approved by the Minnesota Department of Agriculture will be accepted.

External Links

- Iowa Manure Management Action Group
- University of Minnesota Manure Management and Air Quality

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Agronomy & Plant Protection Division

DANE COUNTY MANURE SPREADING TASK FORCE FINAL REPORT
July 7, 2005

Task Force Background

On March 16, 2005, Dane County Executive Kathleen Falk and Chair of the Dane County Lakes and Watershed Commission Brett Hulsey announced the establishment of a task force to evaluate the risks associated with winter spreading of manure, especially liquid manure, and to recommend winter spreading restrictions in order to protect County rivers, streams, fisheries, and farm economy.

The Task Force was asked to make recommendations to the County Executive, Land Conservation Committee (LCC), Lakes and Watershed Commission (LWC) and County Board by May 1.

Members of the Task Force were:

Bob Uphoff, Pork Producer, Town of Dunn

Dennis Jelle, Dairy Farmer, Town of Blue Mounds

Jeff Endres, Dairy Farmer, Town of Springfield

Jeff Smith, Chair, Wisconsin Trout Unlimited Legislative Committee

Andrew Hanson, Staff Attorney for Midwest Environmental Advocates

Jerry Jensen, County Board Supervisor representing rural interests; LWC and Vice Chair of LCC

Don Eggert, County Board Supervisor representing urban interests; LWC and Environmental, Agriculture, and Natural Resources Committee (EANR) member

Chuck Erickson, County Board Supervisor, Chair of LCC, Vice-Chair of EANR

Brett Hulsey, County Board Supervisor and Chair of LWC

Brett Hulsey chaired the Task Force. Sue Jones, Kevin Connors, Steve Ottelien, and Michelle Richardson of the Dane County Land and Water Resources Department (LWRD), and Michelle Woldt of the County Executive's Office provided staff support.

The Task Force held six meetings, on April 13, April 20, April 27, May 4, May 18, and May 25. Meeting minutes and agendas are posted at www.co.dane.wi.us/committees/agendas.asp, under the Dane County Lakes and Watershed Commission. Immediately prior to the May 4 meeting, Jeff Endres led Task Force site visits within the Lake Mendota Watershed, where farms differ in size and scale and all have unique characteristics. Few areas of open water or streams were seen along the tour route. Task Force members observed fields varied in size and crop history, and also a wide variety of conservation practices: no-till, minimum tillage,

contour strips, and double cropping. Winter spreading plans consistent with Land Conservation Division (LCD) staff recommendations were reviewed field by field. At the last stop, the Task Force observed two examples of roughness factors that could be used in the winter spreading plan. Task Force members observed three examples of rates of spreading manure along with soil compaction caused by the manure spreader.

Situation Statement

In early February 2005, application of liquid manure on frozen ground washed into Dorn Creek flowing into Lake Mendota. The farmer had applied liquid manure before a major thaw. There was no fish kill as a result of this incident; however, DNR estimated that significant amounts of phosphorus were added to Lake Mendota at a time when efforts to limit phosphorus runoff from rural and urban areas were increasing.

In late February 2005, manure running off a frozen farm field killed approximately 200 brown trout in the West Branch of the Sugar River, a stream that had just been removed in October from the federal government's list of impaired waters.

This report addresses the landspreading of liquid manure during winter months. Liquid manure is of particular concern because of its mobility on frozen surfaces.

This report establishes the need for additional restrictions on landspreading of liquid manure during the winter months in order to ensure compliance with water quality standards in Dane County's lakes, rivers, and streams. This report also recognizes the economic importance and value of livestock agriculture in Dane County, and seeks to balance the needs of the livestock industry with Dane County's economic and recreational interest in clean water.

Value of Manure and Livestock Industry in Dane County. The application of manure to cropland provides valuable crop nutrients and improves soil structure. In 2003, 3.797 billion pounds (457,470,000 gallons) of manure were produced in Dane County, the majority of which was land applied (Dane County UW-Extension, 10/8/04 memo). The application of 7,000 gallons/acre of surface-applied dairy manure provides only 30% of the nutrient needs for an acre of corn (this assumes even application of manure) (Nutrient Management Fast Facts, Nutrient and Management Pest Management Program, University of Wisconsin-Extension, April, 2003).

Agriculture accounts for 6.8% of all jobs, 11% of the total economic activity, and 6.2% of total income in Dane County. Economic activity associated with Dane County farms and agriculture-related businesses generate $102.8 million in local and state taxes (not including property taxes paid to local schools). Every dollar of sales from agricultural products generates an additional $0.63 of economic activity in other parts of Dane County's economy (Dane County Agriculture: Value and Economic Impact, University of Wisconsin-Extension, Wisconsin Farm Bureau Federation, Wisconsin Milk Marketing Board, 2004).

Individuals, families, family partnerships and family-owned corporations make up the ownership structure of 98.7% of farms in Dane County (Dane County Agriculture: Value and Economic Impact, University of Wisconsin-Extension, Wisconsin Farm Bureau Federation, Wisconsin Milk Marketing Board, 2004). The number of dairy herds in Dane County has dropped from 1,111 in 1985 to 411 in 2004 (WI-DATCP-Ag Statistics). The number of milk cows in Dane County has dropped from 64,000 in 1984 to 48,000 in 2003. According to a report issued in 1997 by American Farmland Trust, Dane County is in the third most threatened farm area in the country. The disparity in the sale price of agricultural land in Dane County continuing in agricultural versus land diverted to other uses has increased from $912 in 1990 to $12,474 in 2003 (WI-DATCP-Ag Statistics, 1993 and 2004).

Dane County Water Resources. Dane County waters are very important for recreational enjoyment, for aesthetics and for defining residents' sense of place. They are a significant part of the high quality of life in Dane County, and the lakes and streams make a significant economic contribution to the community. Madison and Dane County consistently rank among the top communities in which to live, work, play and raise a family (Greater Madison Convention and Visitors Bureau, 2001). The many ways residents enjoy area lakes and streams are key to those high rankings and the new businesses and residents they help attract.

There are 54 lakes, 475 miles of streams and rivers, and 14 miles of the Wisconsin River located in Dane County. The 54 lakes, ranging in size from 2 acres to 9842 acres, comprise nearly 22,000 acres of our 766,912-acre county, or approximately 3% of the total Dane County area. The total surface water acreage in Dane County is 23,000 acres. The county also contains 52,000 acres of remaining wetlands.

There are many cold-water communities in the western, unglaciated part of the county, that are of special importance to trout fishers, and that receive special protection under the Dane County stormwater ordinance due to their vulnerability to thermal pollution. There are 18 identified trout streams in Dane County, and 19 streams designated as Exceptional Resource Waters or Outstanding Resources by the Wisconsin DNR for their high water quality and unique ecological values.

One measure of the increasing importance of water recreation is boat registrations. From 1975 to 2001, registrations for Dane County increased by 56%, from 16,557 to 25,852 boats (Boat registration data for Dane County. Wisconsin Department of Natural Resources, Bureau of Law Enforcement, 2002). The data does not include all Dane County watercraft, as not all boats are required to obtain state registrations, and does not include boats from outside Dane County and Wisconsin that use County waters.

Recreational fishing is very popular within Dane County. In fact in 1999, Black Earth Creek was named one of the top trout fisheries in the nation by Trout Unlimited. Location of waters within or near urban areas makes them readily accessible to anglers. The abundant fishery sustains a thriving local tourism industry, which coupled with fishing by local residents, supports many bait and tackle shops. Fishing provides hours

of enjoyment for people of all ages throughout the year, and the fish caught are important food supplement to many anglers (The Fishery of the Yahara Lakes, DNR 1992).

Water recreation and high water quality also have an economic value. For most lake recreational activities (e.g. swimming, fishing, sailing, motor boating), respondents to a 1995 survey indicated they spend an average of $15 to $22 per outing for supplies and fuel. Respondents stated that they average 15 to 23 outings per summer; thus their direct seasonal expenditure is about $225 to $500 for each activity (Dane County Regional Planning Commission 1995). Multiplied by even a portion of registered boats, expenditures for lake recreation easily run into the millions of dollars annually. UW-Madison and other studies show the high monetary value of high water quality. From 1993 through 2004, more than $3.8 million has been spent on soil conservation, water quality, and watershed improvement projects. These figures do not include the landowner's share of the cost of installed practices, which averages 30-50% of total cost.

Regional Manure Runoff Incidents. The problems that arose in Dane County are not unique; as manure runoff incidents are happening regionally and statewide. There have been 17 incidents of manure affecting fisheries, groundwater and surface water resources in the last year in the 11 counties that comprise the DNR's South Central Region. Those incidents, involving either liquid or solid manure, affected more than 35 miles of public waters and thousands of fish. Two of the 17 events involved well contamination (6 wells from 4 spreading incidents - 2 solid and 2 liquid). Nine of the 17 events were winter spread liquid, and five events were winter spread solid manure. Four of the 17 events occurred in Dane County (2 were surface spread liquid in the winter; 1 was a barnyard runoff and the other spring spread liquid manure before a rain) (Kurt Welke and Mark Cain, 4/13/05 presentation, "The Impacts of Manure on Water Resources and Fisheries" and 5/18/05 clarification from Mark Cain). In addition to the acute affects of manure runoff described above, DNR and other stakeholders are also concerned about chronic, ongoing effects; summer runoff events, and runoff from additional events that are not documented.

Statewide manure spreading considerations. In a statewide study, UW researcher Mark Powell and colleagues found that decisions regarding manure spreading on dairy farms depend heavily on manure storage and labor availability. About 30% of Wisconsin's dairy farms have free-stalls (liquid manure) and 70% tie-stalls (semi-solid manure). Most farmers rely on family labor for manure spreading and manure is generally spread daily. The number of days a farmer can spread depends on soil moisture, or the ability to have tractors and spreaders in the field. Wisconsin dairy farms have 130-160 days to spread manure on an annual basis. The northeast region of the state has fewer spreading days (72) in the spring and fall than in the southwest (90 days).

Task Force Recommendations: Short-Term

The following are consensus short-term recommendations of the Task Force:

1) In order to apply stored, pumpable liquid manure on ground that is ice-covered, snow-covered, or frozen to the point that it does not allow incorporation, a producer shall include a site-specific multi-year winter spreading plan as a component of a conservation plan, and file it with the LWRD. The winter spreading plan shall be completed by November 1, and renewed with the producer's conservation plan.

The required winter spreading plan shall have flexibility while maintaining accountability, by complying with the following provisions:

- Spreading of liquid manure is prohibited in certain areas identified in the USDA NRCS nutrient management standard (590):
  - on a waterway or other channelized flow;
  - on non-harvested vegetation;
  - within 30 feet on both sides of a waterway;
  - within 200 feet upslope of a well, tile inlet, sinkhole, gravel pit or fractured bedrock at the surface;
  - within 300 feet of a stream or drainage ditch;
  - within 1000 feet of a lake; and
  - on slopes greater than 12%.

- Liquid manure application rates shall be limited based on slope according to the guidelines below. The rates were determined by judgment of LCD staff and Task Force members based on experience, and should be subject to future review. As scientific data becomes available, these rates may need to be reviewed and adjusted in light of specific practices used.

Slope	0-2%	3-6%	7-12%	>12%
Maximum Application Rate	7,000 gallons/acre	6,000 gallons/acre	5,000 gallons/acre	prohibited

- Producers shall, as directed by Land Conservation staff, follow one or more of the following conservation practices:
  - grassed buffer along a stream, drainage ditch, or lake (minimum 30 feet)
  - grassed buffer in a field
  - contour strip
  - contour farming (with all residue on the surface)
  - no-till with all crop residue
  - terraces/diversion
  - chisel plow, and
  - other practices, such as intermittent strip spreading, approved by LCD.

- The plan shall incorporate an attachment outlining emergency response procedures that will be implemented if a manure runoff event occurs. This emergency response plan shall include, at a minimum, making emergency contacts (including farmers, haulers, DNR and LCD staff), advance identification of locally available equipment resources, options for emergency spreading, and other resources and contacts. Resource materials for developing a template emergency response plan are found in Appendix 1.

- This winter spreading plan requirement shall be phased in as follows:
    - Summer/Fall 2005 - notify everyone when the ordinance is complete and develop and implement education programs regarding winter spreading requirements
    - Ask for voluntary compliance from producers
    - Take applications for assistance in preparing plans in 2005
    - November 1, 2005 - priority for completion of plans by this date are manure storage facilities located in thermally sensitive watersheds OR Outstanding and Exceptional Resource Watersheds where 590 plans are not in place (LCD will complete as many as possible of the approximately 92 total plans). For these priority areas, winter spreading requirements shall be enforced.
    - November 1, 2006 – compliance deadline for all other Dane County manure storage structures. Priority for plan completion: storage structures where 590 plans are not in place.

2) Producers are strongly encouraged to avoid spreading liquid manure under the following conditions: a) melting snow on frozen ground, b) ice sheet over frozen ground, c) ice pack of snow on frozen ground, d) wet heavy snow on frozen ground, and e) dry snow on frozen ground. The LWRD shall develop and implement a warning/reminder notification system to alert producers when these conditions are present or anticipated. The ordinance shall indicate that failure to receive a reminder is not an acceptable defense for any violation of the ordinance.

3) Compliance shall be enforced to the extent provided by state statute, and monitored by LCD staff when complaints are received. Non-compliance means: no winter spreading plan is in place when one is required, or a winter spreading plan is in place but not followed. Compliance information shall be logged for use in ongoing evaluation. County staff shall proactively monitor for compliance when conditions described in #2 above are present. Penalties consistent with the recently-amended County manure storage ordinance (s. 14.23) shall be included in the ordinance implementing these recommendations: "Any person violating any provision of this subchapter shall, upon conviction, forfeit not less than $10 nor more than $200, together with the costs of such action. Each day of violation shall constitute a separate offense. Any violation of this ordinance may be enforced by court action seeking injunctive relief. The corporation counsel is authorized to commence all legal proceedings in aid of enforcement of this subchapter when requested by the department." Forfeitures levied under the ordinance shall be directed to a fund for clean water projects.

4) State law requires reporting of manure spills. However, farmers who self-report manure spills or runoff in time for actions to prevent or minimize damage to aquatic ecosystems shall receive county enforcement leniency.

5) All professional haulers are urged to join the Professional Nutrient Applicators Association of Wisconsin and receive training (the County is not able to require this). DNR should be asked to require a minimum level of training and/or certification for all professional haulers. The County shall make available a list of haulers who have attended training.

6) County funding and technical assistance to expand storage or promote other practices shall be available as appropriate to help farmers match state and federal funding. Technical and monetary assistance shall be expanded to provide manure storage and other practices where appropriate.

7) Based on workload analysis, two additional staff should be provided to the Land Conservation Division in order to develop, review and update winter spreading plans; conduct manure management education; manage the notification system; make site visits; follow up on complaints, etc.

Task Force Recommendations: Long-Term

The following are consensus long-term recommendations of the Task Force:

1) Regional Manure Facility. The County Executive, County staff, Dane County livestock producers, and others have been discussing the role that anaerobic digesters may play among long-term manure management solutions. These manure treatment and storage systems produce several components including bio-solids that can be land applied for fertilizer. The other co-generated product is methane gas, which can be flared off or burned as a green fuel for power generation or heat. These regional facilities might provide some emergency storage and reduce discharges to streams and rivers.

The County Agriculture Advisory Committee has offered to contribute funds toward a manure digester feasibility study, as have Madison Gas & Electric, Alliant Energy, and others. The feasibility study would also look at broader issues such as digester byproducts and how they could be used. The Task Force supports this feasibility study.

LWRD provided an initial survey of existing manure storage structures in Dane County and their relationship to impaired (303(d)), Outstanding, and Exceptional Resource Waters. This summary is included as Appendix 2. In order to be useful for the feasibility study, this survey should be updated to include estimated length of available storage for each structure.

2) Municipal treatment. The possibility of using municipal treatment systems to handle liquid manure, particularly for short-term durations when conditions do not permit winter spreading, should be explored.

3) Matching manure supply and demand. The Task Force also supports exploring the feasibility of matching producers who have excess manure with those who could use it.

4) Funding. Put more money into Clean Water Fund to expand buffer strips, storage, and other manure management needs.

Other Options Considered by the Task Force

The Task Force reviewed the State of Maine's law prohibiting winter manure spreading. The Maine program prohibits livestock operations with more than 50 animal units from spreading manure from December 1 to March 15. Producers must have a nutrient management plan in place, and storage facilities must have 180-day capacity. Stackable manure may be placed in an approved stacking site. Maine farmers have used approximately $30 million of state and federal cost share funds to build manure storage structures as a result of this program.

Dane County has more cattle and hogs than the entire State of Maine. Additional comparisons are found below:

	County of Dane	**State of Maine**
number of cattle	124,111	89,831
number of hogs	28,243	4,637
number of farms	2,887	7,196
acres in agriculture	515,475	1,369,768

Source: 2002 data from National Agricultural Statistics Service (http://151.121.3.33:8080/Census)

The Task Force did not recommend a similar program for Dane County due the following factors: (1) lack of storage and cost related to building storage which would lead to a faster decline of animal agriculture in Dane County, (2) concerns regarding the amount of manure spread in the spring at a vulnerable time period that could lead to increased runoff events that would also include soil runoff, (3) yield loss and overall land productivity due to delayed planting and soil compaction from spring-time spreading, (4) faster decline of rural roads due to the weight of spreaders and trucks, and (5) lack of public commitment to devote the amount of funds needed to implement a program similar to Maine's.

Implementation of Task Force Recommendations

Short-term recommendations 1-4 (regarding requirements for application of liquid manure on snow-covered and frozen ground) will be incorporated into a Dane County ordinance amendment that will be introduced to the County Board for action.

The Land Conservation Division of the Dane County Department of Land and Water Resources will implement short-term recommendation 5, and all long-term recommendations.

Short-term recommendations 6 and 7, regarding funding and staffing, require County Executive and County Board leadership and action. In the 2006 budget deliberations, the County Executive and County Board will take up issues of funding, staffing, and fees or other revenues.

Currently, a number of committees such as LWC, LCC, EANR, and the Ag Advisory Committee share responsibility for dealing with issues related to winter manure spreading. Therefore, strong consideration should be given to continuing this Task Force, or reconstituting it as an ad hoc committee, to permit better coordination between these groups. The focus of the Task Force or replacement committee should be to continue the information gathering and feasibility analysis necessary to implement the long-term recommendations listed above, maximizing use of technical expertise from UW, Discovery Farms, and DNR. Additionally, any such recommendations considered feasible will likely require further action by the County Executive and the County Board, particularly with regard to funding, staffing, fees, and revenues.

Evaluation

The Task Force recommends an annual evaluation of these recommendations, with a followup report identifying any undue burdens on producers or additional actions, including rate adjustments and other requirements necessary to improve resource protection. Other resources that could be reviewed at that time include, but need not be limited to, descriptions of other Wisconsin county (e.g. Brown, Kewaunee, and Manitowoc) requirements, revised NR 243 manure spreading requirements, and recommendations of the statewide manure spreading task force appointed by the Secretaries of Natural Resources and Agriculture, Trade, and Consumer Protection.

If the proposed recommendations are not sufficient to protect water quality, additional restrictions shall be considered for waters that are already listed as Exceptional or Outstanding Resource Waters and waters that are impaired and listed on the 303(d) list. These are waters that are already clean and must remain so, or are already polluted and cannot sustain additional pollution through acute or chronic manure runoff. Additional wintertime restrictions could include:

1. Excluding fields that directly border ERW/ORWs/303(d) list waters from winter spreading plans; OR

2. Requiring 30-foot buffers on fields in the winter spreading plan that directly border ERW/ORWs/303(d) list waters; OR
3. Requiring more than one of the conservation practices listed in the table on fields in the winter spreading plan that directly border ERW/ORWs/303(d) list waters.

MINORITY REPORT

These items were submitted after a full consensus vote was taken by the Task Force and only represent the feelings of those below.

1. Andrew Hanson of Midwest Environmental Advocates and Supervisor Chuck Erickson believe that liquid manure spreading rates identified in Short-term recommendation #1 are too high, and, at a minimum, should be reduced to the following levels:

Slope	0-2%	3-6%	7-12%	>12%
Maximum Application Rate	7,000 gallons/acre	5,000 gallons/acre	2,500 gallons/acre	prohibited

2. Andrew Hanson of Midwest Environmental Advocates and Supervisor Chuck Erickson believe that there should be no liquid manure spreading during winter on fields that directly border ERW/ORW/303(d) list waters, or thermally sensitive waters, because of the mobility of liquid manure on frozen ground. Further, vegetative buffer strips on those fields would be likely be insufficient, standing alone, in the winter at attenuating manure pollutants and preventing manure runoff, particularly during a snow-melt.

3. Andrew Hanson of Midwest Environmental Advocates and Supervisor Chuck Erickson believe that the maximum penalty amount for violations of the ordinance should be raised to $1,000 per day. All penalties collected should be dedicated to a fund that would provide cost-share assistance to livestock operations seeking to implement conservation measures. Raising the penalty amount increases specific and general deterrence, and provides rewards to livestock operations who want to comply with the ordinance and install additional conservation measures.

Appendix 1

Emergency Response

LWRD will develop a template for emergency response plans, drawing on the following resources recommended by DNR and LCD:

> "How Can I Develop an Emergency Response Plan for My Livestock Facility?" By Randy Fonner, Department of Agricultural Engineering, University of Illinois. (available at www.age.uiuc.edu/bee/Outreach/lwmc/lwm46.htm)
>
> Ohio Department of Agriculture Emergency Response Plan, pages 1-4 (Revised 9/2002). (Available at www.ohioagriculture.gov/pubs/divs/lepp/curr/fact/lepp-fm-emergencyresp-120103.pdf)
>
> "Emergency Action Planning for Livestock Operations" by Don Jones and Alan Sutton, Purdue University, and Charles Gould, Michigan State University. Published by Michigan State University Extension (ID-301 E 2820). (available at www.ces.purdue.edu/extmedia/ID/ID-301.pdf)
>
> Natural Resources Conservation Service Emergency Action Plan Example Templates
> (Available at http://www.wi.nrcs.usda.gov/technical/cnmp.html)

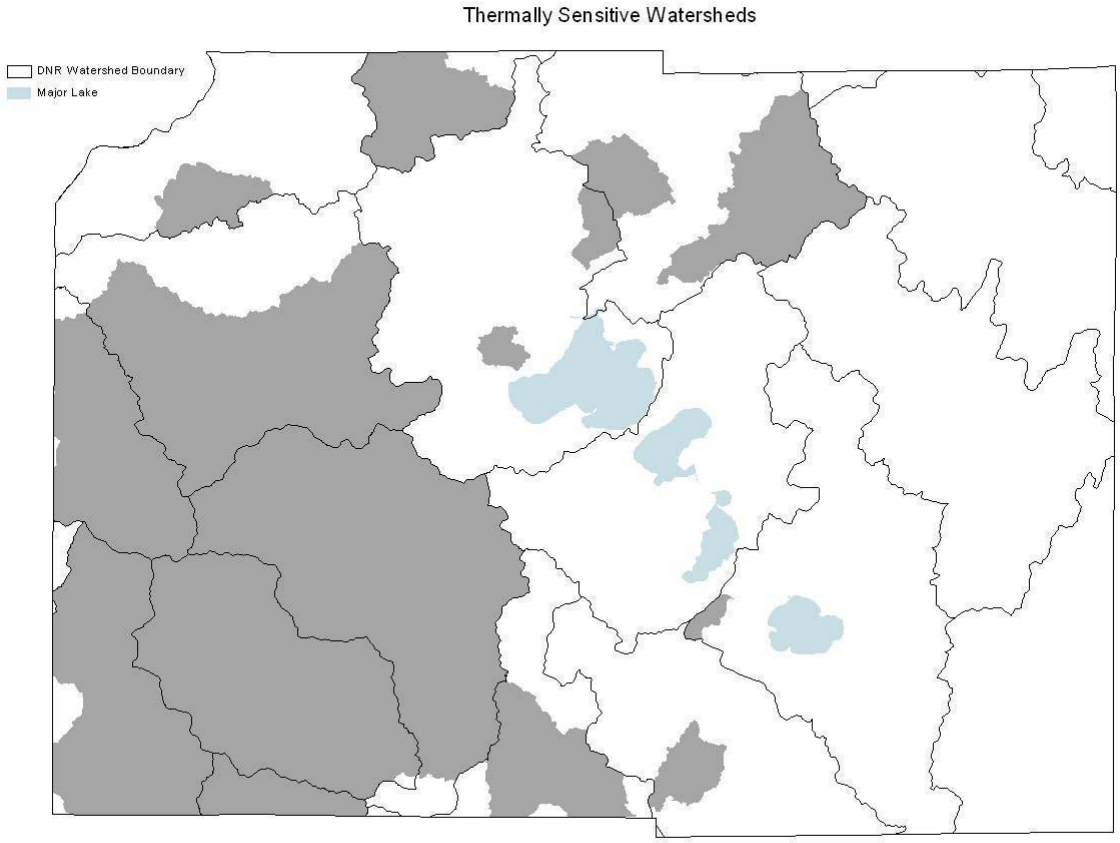
Appendix 2

Dane County Manure Storage Facilities: Their Nutrient Management Plan Status and Location in Watersheds of Concern

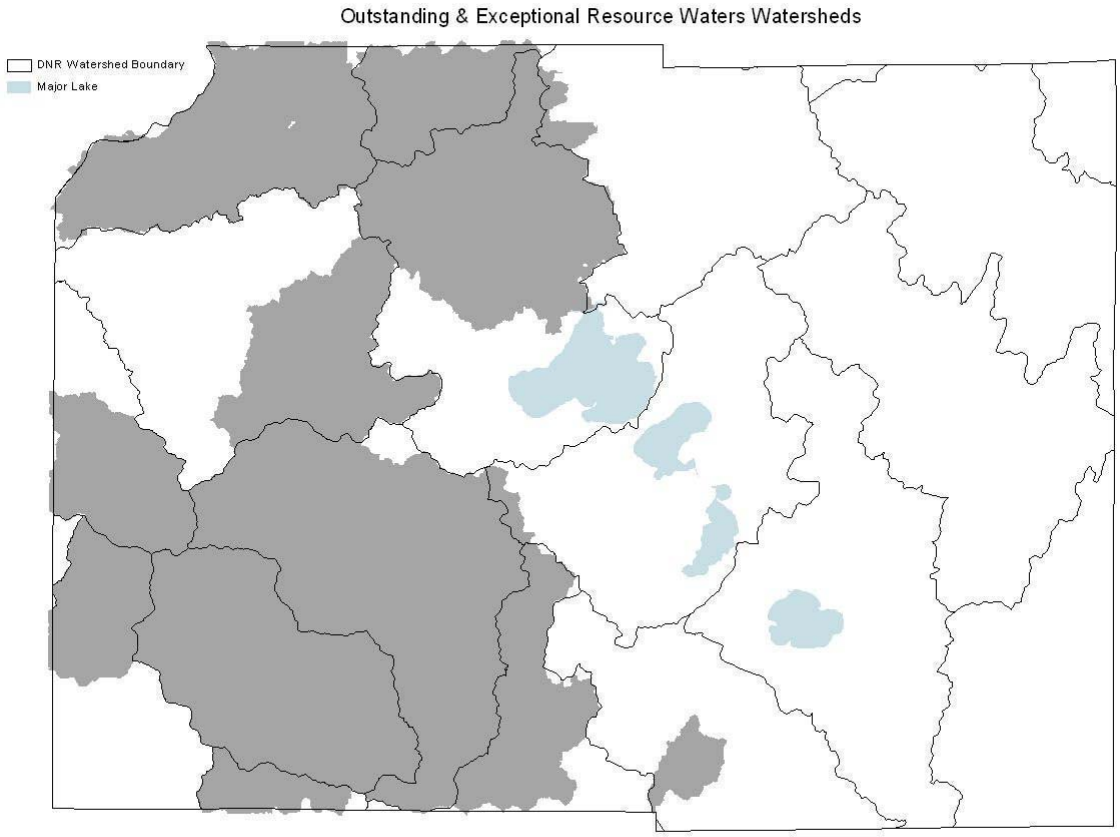
590 Status	County-wide	In Thermally Sensitive or O &E or 303d Watersheds	In Thermally Sensitive Watersheds	In Outstanding & Exceptional (O & E) Resource Waters Watersheds	In Thermally Sensitive AND O &E Watersheds	In Thermally Sensitive OR O &E Watersheds	In 303d (Impaired) Watersheds
None	135	118	55	80	43	92	71
N-based	26	24	8	16	6	18	19
P-based	28	26	4	10	3	11	23
TOTAL:	189	168	67	106	52	121	113

Source: Dane County Land & Water Resources Department, prepared 5/25/05

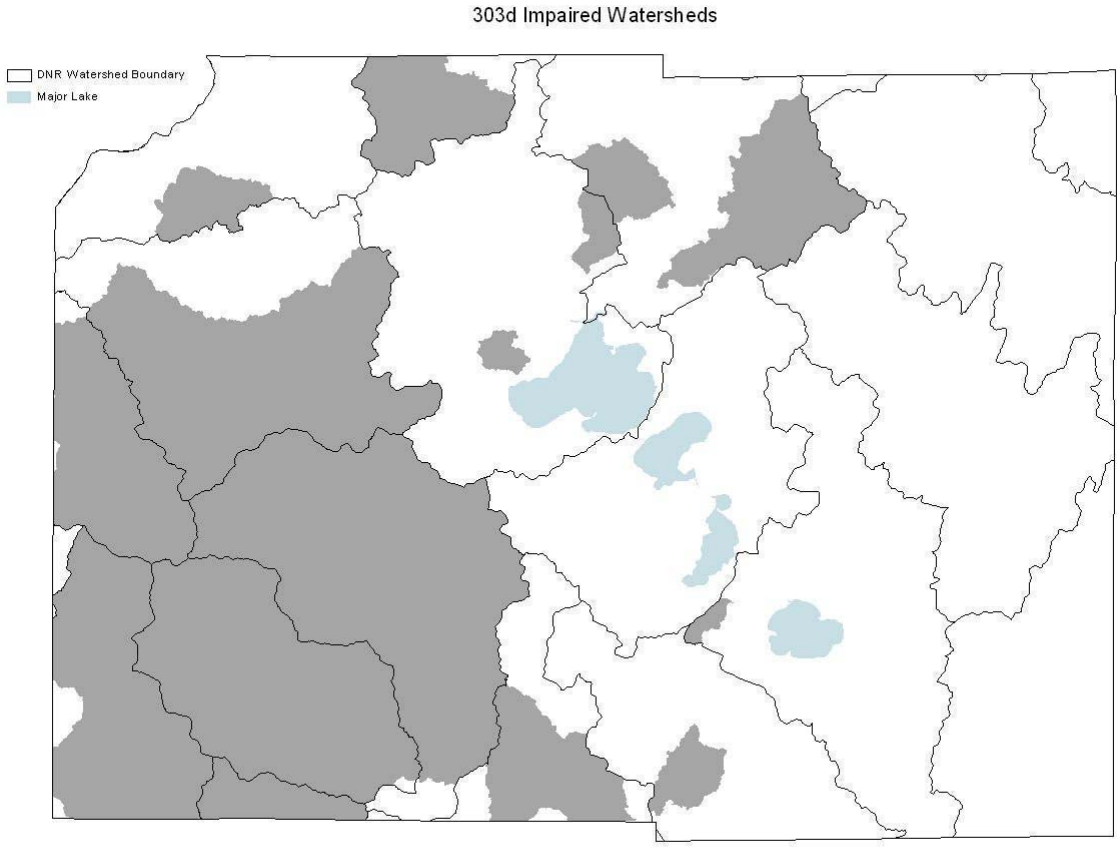
There are 189 manure storage facilities in Dane County. This table indicates their USDA NRCS nutrient management standard (590) status, and location in watersheds of concern. Maps of thermally sensitive, outstanding and exceptional resource water, and 303(d) impaired watersheds in Dane County are found on the following three pages.



Source: Layer was created by the Dane County LWRD with data from DNR and UW-Madison LICGF. Areas of land that drain to cold water communities (as defined by DNR). Drainage information derived from 1:24,000-scale DNR watersheds and 10m Digital Elevation Model.



Source: Outstanding and Exceptional Resource Water information is from DNR. Watershed information was derived from Dane County Subwatersheds (generated from a 10m Digital Elevation Model) by Dane County LWRD.



Source: 303d information is from DNR (2004). Watershed information was derived from Dane County Subwatersheds (generated from a 10m Digital Elevation Model) by Dane County LWRD.

FARM & HOME ENVIRONMENTAL MANAGEMENT PROGRAMS

~Ag EMS/WQPAAP/Healthy Homes/Farm*A*Syst/Home*A*Syst~

NEWS

WINTER 2003/2004

This quarterly electronic newsletter of FARM & HOME ENVIRONMENTAL MANAGEMENT PROGRAMS aims to inform interested readers about voluntary pollution prevention programs around the nation and about new research and policy impacting the management of environmental risk on farms and in homes. To subscribe or unsubscribe to this online newsletter, for more information, or to contribute to this newsletter, please refer to our website (http://www.uwex.edu/farmasyst), or email editor Mrill Ingram mingram@wisc.edu We welcome comments and feedback!

USDA-CSREES, USDA-NRCS, and the U.S. EPA provide support for our programs.

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EMS Lowers Insurance Rates for Manure Haulers in Wisconsin

With business names like Royal Flush, Dairy Aire, Knee-Deep, and After All, you might not realize how seriously Wisconsin manure haulers take their work. Manure hauling has become an increasingly critical business here, as well as in other states, as expanding livestock operations struggle to figure out how to handle larger amounts of manure, residents of new rural subdivisions complain about messy roads and odor, and manure spills generate bad press. In response to increasing certification requirements, environmental and safety legislation, as well as equipment and insurance costs, a group of Midwestern manure haulers joined together in 2001 to form the Professional Nutrient Applicators Association of Wisconsin (PNAAW). Working with the support of the UW-Extension's Nutrient Management Team, including Kevin Erb, PNAAW's members have developed spill response and voluntary certification programs, as well as numerous education and training opportunities on field application and manure control.

Along with environmental risk, PNAAW has also been concerned about the rising cost of manure spills and of pollution insurance for haulers. The group has worked closely with insurance agent Dave Anderson of Vincent, Urban Walker, who has been successful in dramatically reducing insurance premiums for haulers. A major piece of this success,

Anderson reports, has been an EMS.

"Manure haulers can have a million dollars invested in their hauling equipment," explains Anderson. "They want to protect that equipment and to have insurance. Manure spills are expensive -- in some cases, people have figured out a cost per fish."

Only a few years ago, pollution insurance for manure haulers was $12,000 a year for $1 million in insurance. When Dave Anderson was approached by the manure haulers, he decided a first step was to inform insurance carriers about what the business involved. "We simply took insurance company representatives out in the field to see what people actually do," says Anderson. "As a result they dropped insurance rates to $2,600 to $3,500 a year."

Despite this dramatic achievement, Anderson felt he could do more. He had been working with the International Standard Organization's certification program for product quality, ISO 9000, and had just learned about the environmental standard, ISO14001. "I was inspired to look further at the EMS process," he explained. "We saw it as another service we could offer our clients."

Anderson used the 12-page introductory EMS booklet produced by Farm and Home Environmental Management Programs as a starting place to develop his own five point EMS process for manure haulers. It is an informal EMS -- he does all the training and the audits. It has also been very successful. "Our first EMS was done just this past summer," he reports. "We had anticipated that, as a result of the EMS, the insurance company would offer us a cut of 15 percent -- they gave us 22 percent.

Anderson explains that the insurance companies like the fact that the manure haulers' EMS is a "living document," and that all employees, not just the business owner, sign off every year. "This isn't something you finish with, put on a shelf and forget," he states. Anderson has designed the EMS process to unfold over five years of continuous improvement. "The last thing these guys want is more paper," relates Anderson. "We started with the environmental policy and goals, and the first year the focus was on the spill response plan. The second year we focus on document procedures."

Anderson says he has already seen specific results from EMS implementation in terms of process and prevention. "These guys use lots of technology," he explains. "There is an 8" hose that is 2 to 3 miles long, through which the manure is injected into the ground. No matter how careful people are, hoses can break or leak. If no one is checking the line every 15 minutes, you can have a real mess." The standard check time is fifteen minutes, Anderson explains, but as a result of the EMS, this process is in writing and employees record their checks. "I make unannounced visits," Anderson says. "I can see these checks happening every 15 minutes - the process is working." Anderson also reports that the EMS requires maintenance and improvement of trucks, including cleaning the equipment more often, and that haulers have told him that they feel more efficient and are taking their jobs more seriously as a result.

Anderson is also serious about his EMS. "I've already had one guy who hadn't reached his stated goals and was showing no improvement. I refused to work with him and said he could find insurance elsewhere." Anderson reports that the hauler eventually came back to him, ready to work on his EMS, because he'd been unable to find insurance rates as low. "I

have some teeth to make this thing effective," Anderson states.

Anderson says he has also seen interest in EMS from farmers he insures, especially those milking over 150 animals a day, and who have more visible manure holding sites and visible applications of fertilizer and nutrients. He is working on developing an EMS for dairy producers and is also planning on working with feed mills soon. "We don't charge for the EMS, he says. "We think it is time well spent."

News this week sponsored by: ***USFilter***

New Regulations Mandate Dairy Waste Report, Fees

August 26, 2005

After three years of waiting in regulatory limbo, dairy producers in the Central Valley are now being asked to assess their waste handling and land application practices to ensure they are protecting surface and groundwater quality.

On Aug. 8, the Central Valley Regional Water Quality Control Board sent letters to all dairy owners and operators in the Sacramento and San Joaquin valleys requesting a mandatory report of waste discharge to be submitted by Oct. 17. An annual permit fee ranging from $327 to $4,360--depending on the size of the dairy--must be submitted with the report. As an incentive, facilities certified under the California Dairy Quality Assurance Program pay only 50 percent of the fee.

The waste discharge report is the first requirement for dairy producers to comply with new federal and state regulations for protecting water quality, said Paul Martin, environmental resources director for Western United Dairymen.

"It's not something that dropped out of the blue," said Martin. "It's the kickoff. Then the other stages will come. The trade associations, the (University of California) Cooperative

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- Honeywell Zellweger Analytics Builds Gas Detection System for Dublin Port
- Great Lakes Regional Collaboration Endorsed by American Environmental Artist
- Researchers to Study Desalination Options

Extension and the California Dairy Quality Assurance Program will all be involved in discussing how this is going to go forward, as will other stakeholders."

Prior to 2003, most producers were covered under a conditional waiver of waste discharge requirements and were not required to submit annual reports to the regional board. Later, producers were told of their obligation to comply with water quality rules, but they weren't required to submit any information unless it was requested by the board.

"Basically what it's going to boil down to is an assessment of facilities, nutrient balancing, waste management plan and emergency management plan," said Martin. "Producers are going to be asked to develop this kind of information. The monitoring programs and reporting programs will be developed as we go."

Some 1,700 dairies from the Oregon border to Kern County will be affected by the water quality rule. The CDQA Program plans to hold a series of workshops to assist producers in completing the waste discharge report and walk them through the various steps in the regulatory process, said Deanne Meyer, livestock waste management specialist from UC Davis.

"What we really want to do is provide them with some information and say, 'Here's the future; here's the kind of information you're going to need to collect; and here's what's going to happen with that information,'" said Meyer.

Representatives of the CDQA Program will notify producers when these meetings are scheduled. Meyer advised producers to watch for announcements in their milk checks and trade association updates.

Although the procedural details are still sketchy, Meyer said one thing is sure: All dairies that handle manure, whether they are owned or leased, will be required to do more record keeping and monitoring. This means producers will need to sample their solid and

Bottled Water Industry Provides Assistance to Hurricane Stricken Region

Ecoloclean Announces Pending Amendment to Pollutant Discharge Permit

EPA Approves Maryland Water Quality Standards, Giving Jump Start to Chesapeake Bay Cleanup

Jacobs Receives Watershed Facility and Combined Sewer Overflow Planning Contract Extension

Trinity Bottled Water for Hurricane Katrina Disaster Aid

New Handbook to Help Accelerate Watershed Protection Programs

Another Safe Step in Water Treatment Systems for Domestic Use

ZENON Opens New Regional Office in San Diego County

HDR "Writes the Book" on Water Reuse

EPA Launches Fertilizer and Pesticide Awareness Campaign

ENSR Expands Energy Utility Projects and Clean Water Act Expertise

Patriarch Funds Acquires Oasis Corp.

American Water Sponsors Raritan Watershed Clean-up

MWH Soft Urban Drainage Modeling Specialist Receives Top Humanitarian Honor

Ruddiman Creek Sediment Cleanup Underway

White House Lauds the Blackfoot Challenge at National Conference on Cooperative Conservation

Telvent to Upgrade Water Treatment Plant in Albuquerque, N.M.

Michigan Attorney General Reinforces Concerns About Annex 2001

Ecovation to Take Over Waste Stream Operations at CoolBrands facility

EPA Appoints Director for National Risk Management

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CSC Wins $86 Million EPA Contract to Provide Scientific and Technical Expertise

liquid wastes before they apply them to crops, track where the nutrients go and how much is removed from the growing crop. They also will need to calculate their existing storage capacity and determine how much is needed, based on their parlor activities and rain runoff.

For many dairy producers, these practices are a whole new process because they've never been asked to do them before, Meyer said. Furthermore, the information they submit to the regional board will eventually become public record.

"Does the average producer understand the magnitude of what this is going to do to them? No," she said. "Unless their facility was built in the last 10 years, this idea of submitting a report of waste discharge is new to them. They need to understand what their obligations are. They need to be able to assess their facility and figure out where they stand. They need to be able to have some comfort zone, or lack thereof, as to whether they're going to be a prime target for a lawsuit over groundwater contamination or potential groundwater contamination."

These issues will become more apparent as producers attend the workshops, she added.

"But to be able to do the class, we need to know where the water board stands, and we don't know that yet," she said.

Water Rates Among Issues Facing Leaders at AWWA Public Officials Summit

Facilities Commit to Environmental Improvements Beyond Current Regulatory Requirements

TraceDetect Wins 'New Technology' Award for Automated Arsenic Analyzer

EPA Names Two Illinois Treatment Plants Among Best-operated in 2005

Teledyne Acquires RD Instruments, Inc.

Wildermuth Environmental Awarded Water Resources Project Contract

Kim Pearman-Gillman to Join Itron, Inc. as Vice President, Marketing

New Jersey American Water Announces Project To Enhance Water Delivery in Gloucester County

New Regulations Mandate Dairy Waste Report, Fees

ITT Industries Announces Award for Student Water Journalism

WEF Selects Enviro Voraxial Technology to Discuss Voraxial Separator at Technology Conference

Water Flow from PPL's Martins Creek Ash Basin Greatly Reduced

World Chlorine Council Highlights Health Value of Chlorine

- All Current News
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In the meantime, producers should plan to attend the workshops and make sure they submit their waste discharge report with the appropriate annual fee to the regional board by Oct. 17, Meyer said.

Martin also encouraged producers to become certified under the CDQA Program, to reduce the amount of annual fee they will need to pay. Currently, only about 250 California dairies are certified, he said.

Source: *California Farm Bureau Federation* August 26, 2005

Animal Waste Management Program Roles and Responsibilities
Notice of Discharge

Action	Responsible Agency	Comments
Complaints		Anyone can receive a complaint, but all are routed to DNR-AW.
receive complaint	DNR-AW	
screen complaint	DNR-AW	
On-Site Determination/Investigation		DNR-AW contacts LCD, DATCP to coordinate visit.
contact landowner	DNR-AW	
meet with landowner	DNR-AW, LCD, DATCP	
complete investigation report	DNR-AW	
water quality impact determination	DNR-AW	
recommend corrective measures	LCD, DATCP, DNR-AW	
Issue Notice of Discharge		All water quality problems must be clearly identified in NOD. Reasonable compliance schedule is developed.
identify all corrective measures needed	DNR-AW	
develop timetable	DNR-AW, LCD, DATCP	
Technical Assistance		A plan is developed by LCD, DATCP to resolve problems listed in NOD. Plans must meet DNR-AW, landowner, and NRCS requirements.
develop plan	LCD, DATCP, PC, NRCS	
design plan	LCD, DATCP, PC, NRCS	
obtain zoning permits	DNR-WZ, CZ	
overview installation	LCD, DATCP, PC, NRCS	
Certification		Prior to releasing cost sharing monies, the practices must be certified to meet NRCS specifications and satisfy the intent of the NOD.
post construction verification	LCD, DATCP, PC, NRCS	
certify practices	LCD, DATCP, PC, NRCS	
Grant Administration		Landowners are notified of cost sharing available after NOD is issued. All grants are administered through DATCP.
inform NOD recipient of financial assistance	DATCP, LCD	
develop cost share agreement	LCD, DATCP	
issue cost share payment	LCD, DATCP	
Enforcement Proceedings (if necessary)		If landowner misses compliance dates, DNR-AW determines appropriate steps, including enforcement proceedings.
issue extension if deemed practical	DNR-AW, LCD, DATCP	
send enforcement letters	DNR-AW, DNR-ES	
enforcement conference	DNR-AW, DNR-ES	
Issue WPDES Permit	DNR-WW	Failure to comply with NOD, may result in issuance of a WPDES permit.
Referral to DOJ	DNR-ES	Failure to comply with WPDES permits may result in referral to DOJ.

DNR-AW = Animal Waste, DNR-ES = Enforcement Specialist, DNR-WZ = Water Reg and Zoning, DNR-WW = Wastewater, PC = Private Consultant, LCD = County Land Conservation Department or DATCP if county chooses not to participate, CZ = County (Local) Zoning Office, NRCS = Nat Res Conserv Service

Ohio Department of Agriculture

Emergency Response Plan

Forms

Purpose: The emergency response plans are required to be developed and maintained on all Concentrated Animal Feeding Facilities (CAFF), Major Concentrated Animal Feeding Facilities (MCAFF), or Concentrated Animal Feeding Facilities (CAFO). Emergency response plans are used to minimize the environmental impact of emergencies that could happen at a facility.

In preparing the emergency response plan, it is recommended that the owner or operator use this form or, in the alternative, use a form that is satisfactory to the Director if the Director finds that the alternative form contains all of the information required in rule 901:10-2-17 of the Administrative Code.

Sections F, G, and H of the Emergency Response Plan are not required as part of the plan. They are however recommended as a resource for the owner or operator to have on-site in case of an emergency.

Please fill in all information sheets as thoroughly as possible.

A. General Facility Information Sheet
B. Effluent Spill Emergency Response Information Sheet
C. Runoff Retention Plan
D. Prearranged Emergency Response Agreements
E. Manure Handling System Maintenance Record
F. Fire Emergency Response Information Sheet
G. Power Outage Information Sheet
H. Personal Information
I. Mortality Management Plan
J. Emergency Action Plans for the following:
    1. Dike overtopping or eroding, or above ground storage leak.
    2. Full lagoons, ponds, or pits when planned application areas are currently unavailable.
    3. Spills during delivery of liquids to the field.
    4. Facility fire.
    5. Serious injury to persons.

It is recommended that the owner or operator keep a copy of the emergency response plan in the operating record and a copy at the site office so that it is easily accessible to all employees.

Ohio Department of Agriculture

Emergency Response Plan

A. General Facility Information Sheet

OWNER OR OPERATOR NAME (This information should be the same as the information contained in the associated permit application.) 901:10-2-17(A)(1)

Name of Owner or Operator: _____

Name of Facility: _____

Phone Number: _____

LIVESTOCK MANAGER (if applicable)

Name: _____

Phone Number: _____

EMERGENCY CONTACT INFORMATION

Second Contact Person if owner is not available.

Name: _____

Phone Number: _____

Third Contact Person if owner/operator and second contact person are not available.

Name: _____

Phone Number: _____

EMERGENCY RESPONSE CONTACTS

Ambulance (EMS) phone number: _____

Fire Department phone number: _____

County Sheriff phone number: _____

STATE

Emergency Management Agency phone number: _____

Ohio EPA Emergency Response Spill phone number: _____

Department of Agriculture phone number**:**_____

After Hours Department of Agriculture phone number:

_____

LOCAL/COUNTY

Local Health Department phone number: _____

Natural Resources Conservation Service phone number: _____

Soil and Water Conservation District phone number: _____

PROCEDURES TO BE FOLLOWED IN THE EVENT OF A SPILL

The procedures listed below are to be followed in the event of a spill or discharge to waters of the state. This includes the actions taken to contain or manage a spill. 901:10-2-17(A)(3)(a)-(d)

List the actions to contain or manage a manure spill:

_____
_____
_____
_____

Identify the proper authorities to be contacted: (the authorities are listed above)

_____
_____
_____
_____

List the actions to mitigate any adverse effects of a spill:

_____
_____
_____
_____

List the equipment and clean-up materials to be used in the event of a spill:

Type of Spill	Date Occurred	List of Agencies Contacted	Equipment Used for Clean-up	Comments

IN THE EVENT OF A DISCHARGE THE PERSON REPORTING THE DISCHARGE SHALL SUPPLY THE FOLLOWING INFORMATION TO THE OHIO DEPARTMENT OF AGRICULTURE. (A form is provided below).

1. **List the times at which the manure spill occurred and was discovered.**

2. **List the approximate amount and the characteristics of the manure spillage.**

3. **If applicable list the stream affected by the spillage.**

4. **List the reasons which created the spillage.**

5. **List the names and phone numbers of person who have knowledge of these circumstances.**

6. **List the steps taken to clean up the spillage.**

7. **List the names and telephone numbers of persons responsible for the cleanup.**

Date and time of manure spill	Amount and characteristics of the manure spillage	Stream Effected	Reason which created the spill	Name and phone number of persons with knowledge	Steps taken to clean up the spill	Names and phone numbers of persons responsible for the cleanup.

FACILITY MAP

Draw or attach a map to this document and include written directions to the facility.

On the map, indicate the location of buildings, lagoons, wells, hazardous materials, property boundaries, and possible direction of lagoon runoff. Also, indicate the location of materials that could be used for temporary berms, i.e., dirt piles, old hay bales, sawdust, etc.

Provide written directions to the facility.

THE OWNER OR OPERATOR SHALL ALSO FILE A WRITTEN REPORT OF THE OCCURRENCE IN LETTER FORM WITHIN FIVE DAYS FOLLOWING FIRST KNOWLEDGE OF THE OCCURRENCE, UNLESS OTHERWISE WAIVED BY THE DIRECTOR. THIS REPORT SHALL OUTLINE THE ACTIONS TAKEN OR PROPOSED TO BE TAKEN TO CORRECT THE PROBLEM AND TO ENSURE THAT THE PROBLEM DOES NOT RE-OCCUR.
901:10-2-17(A)(4)(d)

(The written report shall be sent to the following address: Ohio Department of Agriculture, Livestock Environmental Permitting Program, 8995 East Main Street, Reynoldsburg, Ohio 43068.)

*Date of occurrence:*_____

*Date report sent to Ohio Department of Agriculture:*_____

Report written and signed by the following person:

_____

_____

Ohio Department of Agriculture

Emergency Response Plan

B. Effluent Spill emergency Response Information Sheet

OWNER OR OPERATOR NAME (this information should be the same as the information contained in the associated permit application.) 901:10-2-17

Facility Name:_____

Owner or Operator:_____

Phone Number:_____

LIVESTOCK MANAGER (if applicable)

Name: _____

Phone Number:_____

FIRE DISTRICT:_____

SIZE AND TYPE OF OPERATION:_____

EMERGENCY CONTACT INFORMATION

SECOND CONTACT PERSON (if owner is not available)

Name:_____

Phone Number:_____

THIRD CONTACT PERSON (if owner or second contact is not available)

Name:_____

Phone Number:_____

LOCATION OF MANURE STORAGE FROM THE BUILDINGS:

_____
_____
_____
_____
_____
_____

Ohio Department of Agriculture

Emergency Response Plan

C. Runoff Retention Plan

For emergencies involving a release of manure, the action plan normally involves the recognition and assessment of the problem, notification of authorities, enlistment of help from cooperating producers and others to correct the problem, and restoration of the affected area to its original condition.

Plan for containment below the lagoon in direction of runoff. Study the drainage patterns from the facility and envision where a manure spill will move while it is still on the property and after it leaves the property. Determine the point at which the spill might enter surface waterways. On some facilities, manure may travel long distances before entering a ditch or stream. In other cases, a stream may be nearby, demanding a much faster response. Describe the procedures to be followed for retaining runoff. Include any equipment that would be required and how it is to be used.

FACILITY MAP

Refer to the facility map in Section A of the emergency response plan.

901:10-2-17

Ohio Department of Agriculture

Emergency Response Plan

D. Prearranged Emergency Response Agreements

To deal with an emergency quickly and effectively, most operations need assistance from other individuals. It is essential that prior arrangements be made so every person involved knows what to do when an emergency arises. Individuals can quickly bring equipment such as tractors with plows, backhoes, bulldozers, or ever personnel with shovels. Reciprocal agreements can be established with these neighbors.

If a spill occurs, it is very important to have access to nearby land, irrigation, and earth-moving equipment. In most cases, the owner or operator, producer, farmer, or emergency response personnel must contact people who own the equipment needed to respond to a spill. Having a prearranged written agreement with these people simplifies matters. The terms of these arrangements should include such things as financial compensation and a description of the equipment that would be used. List any arrangements made with other owners, operators, or producers and neighbors to share personnel and or equipment, supplies, and land access during an emergency.
901:10-2-17

ACCESS AGREEMENT

(The following is a sample land access agreement.)

This document will serve as an access land agreement between

_____

(hereafter called owner or operator) and

_____

(hereafter called neighbor.)

In the unlikely event that a manure discharge originating from the owner or operator's property enters neighbor's property, neighbor hereby grants permission to owner or operator or his agents to enter neighbor's property and take any reasonable steps to control, contain, and remediate the manure discharge.

Owner or operator agrees to restore neighbor's property to its original condition.

Signed_____ Date_____

PREARRANGED EMERGENCY RESPONSE AGREEMENTS

List any arrangements made with other owners or operators to share personnel and or equipment, supplies, and land access during an emergency.

Prearranged Land Access Agreements

Contract One:_____

Contract Two:_____

Lagoon Pumping Services

Name:_____

Address:_____

Phone:_____

Name:_____

Address:_____

Phone:_____

Name:_____

Address:_____

Phone:_____

Ohio Department of Agriculture

Emergency Response Plan

E. Manure Handling System Maintenance Record

LOCATION OF PREARRANGED EMERGENCY EQUIPMENT AND SUPPLIES

This includes equipment that is available twenty-four hours a day. Include phone numbers and primary contacts. Put a list in the order that the owner or operator would like the equipment operators contacted. Post a copy in each building onsite, in site office, and the owner or operator's residence. Preferably posted by a phone or the main doorway. 901:10-2-17

Owner	Phone	Location	Comments
Irrigation Pumps			
Bulldozer/Track Loader			
Backhoe			
Vacuum Slurry Tank			

Ohio Department of Agriculture

Emergency Response Plan

F. Fire Emergency Response Information Sheet

This form is not required but is recommended.

OWNER OR OPERATOR NAME (this information should be the same as the information contained in the associated permit application.)

Facility Name:_____

Owner or Operator:_____

Phone Number:_____

LIVESTOCK MANAGER (if applicable)

Name: _____

Phone Number:_____

FACILITY INFORMATION

Farm Fire Protection District:

---

911 Coordinates for Facility:

Size and Type of Operation:

EMERGENCY CONTACT INFORMATION

SECOND CONTACT PERSON (if owner is not available)

Name:_____

Phone Number:_____

THIRD CONTACT PERSON (if owner or second contact is not available)

Name:_____

Phone Number:_____

ELECTRICAL POWER COMPANY

Electrical Power Company

Name:_____

Phone Number:_____

Is there a disconnect between the meter base and the buildings? __Yes__No

If so where?_____

_____

Give the location of the electrical panels in the buildings.

OTHER FUELS OR HAZARDOUS MATERIALS

List other fuels located on the facility and their location.

_____
_____
_____
_____

Are hazardous materials stored in the facilities? __Yes__No

If yes, provide the location(s) and a list of the materials.

_____
_____
_____
_____
_____

PROPANE COMPANY

Propane Company

Name:_____

Phone Number:_____

Location and size of propane tanks:

_____

Ohio Department of Agriculture

Emergency Response Plan

G. Power Outage Information Sheet

This form is not required but recommended.

OWNER OR OPERATOR NAME (This information should be the same as the information contained in the associated permit application.)

Name of Owner or Operator: _____

Name of Facility: _____

Phone Number: _____

LIVESTOCK MANAGER (if applicable)

Name: _____

Phone Number: _____

EMERGENCY CONTACT INFORMATION

Second Contact Person if owner is not available.

Name: _____

Phone Number: _____

Third Contact Person if owner/operator and second contact person are not available.

Name: _____

Phone Number: _____

Electrical Power Company

Name:_____

Phone Number:_____

Size of Electrical Service:_____

ALTERNATOR

Is there a Standby Alternator? __Yes__No

If so, is there a Double-Throw Disconnect to Isolate the Facility from the Utility During Alternator Operation? __Yes__No

Is there a Disconnect between the Meter Base and Panel? __Yes__No

LIST THE NAME AND NUMBER OF ELECTRICIANS WHO PERFORM SERVICE ON THE FACILITY.

Name:_____

Phone Number:_____

Name:_____

Phone Number:_____

Name:_____

Phone Number:_____

Ohio Department of Agriculture

Emergency Response Plan

H. Personnel Information

This form is not required but recommended.

The owner or operator should have an up-to-date list of any persons who are employed by the owner or operator. This personnel information document is to be filled out by the owner or operator and should contain any special responsibilities of the employee's employed at the facility.

Name:____

Special Responsibilities:______________________________________

Name:____

Special Responsibilities:______________________________________

Name:____

Special Responsibilities:______________________________________

Name:____

Special Responsibilities:______________________________________

Name:____

Special Responsibilities:______________________________________

Ohio Department of Agriculture

Mortality Management Plan

I. Mortality Management Plan

OVERVIEW

Under Ohio law the disposal methods for dead livestock are as follows: incineration, burial, composting, rendering, and landfill. See rule 901:10-2-15 of the Administrative Code or Section 941.14 of the Ohio Revised Code.

Incineration – Incinerating dead poultry and small animals is biologically the safest disposal method. The incinerator should be sited in a convenient location that will avoid potential problems and be downwind of livestock housing, farm residences, and neighbors. Owners or operators are encouraged to contact the Ohio EPA for additional information.

Burial – Burial involves excavating a grave or pit, filling the bulk of the excavation with dead animals, and then covering them with soil until the grave or pit is filled. Where regulations allow burial, there are generally strict siting requirements. Common siting requirements include locating the burial where it will not create an actual or potential public health hazard.

Composting – Composting is similar to the process of natural decomposition except that it is enhanced and accelerated by mixing organic waste with other ingredients in a manner that optimizes microbial growth. Owners or operators are encouraged to contact their local Ohio State University Extension or Soil and Water Conservation District for information.

Rendering – The use of rendering services recycles the nutrients contained in dead animals. Proper biosecurity measures must be utilized to minimize the spread of disease from farm to farm by rendering plant vehicles and personnel. If animals are rendered they should be transported within twenty-four hours of their death. An area must be designated outside the perimeter of the facility for pick-up by rendering personnel. The owner or operator is encouraged to contact the Ohio Department of Agriculture's Animal Industry for additional information.

Sanitary Landfill – Sanitary landfills are engineered burial facilities for disposal of solid waste. Disposal of dead poultry and/or animals in a sanitary landfill is permitted in some areas. The owner or operator is encouraged to contact the landfill operator to determine if the landfill in the area accepts dead animals, the fees associated with the animals, and the proper containers for disposal.

INSTRUCTIONS

This plan is to be kept in the operating record. A record of the date and time of each inspection for animal mortality must be recorded in the operating record on a daily basis.

Fill in the blanks listed below and check the following type of disposal method that is to be used. Include the best management practices necessary to implement the disposal of dead livestock.

Owner's/Operator's Name and Facility Name

This information should be the same as the information contained in the associated permit application.

Name of Owner/Operator:

Name of Facility:

Name of Livestock Manager:

Local Veterinary, Name and Phone Number

_____

_____

Ohio Department of Agriculture, Animal Industry, Phone Number

_____

_____

Ohio Department of Agriculture, Livestock Environmental Permitting Prog., Phone Number

_____

_____

DISPOSAL METHODS

- **Incineration:**

  Location**:**_____

  Equipment Needed: _____

- **Burial:**

  Location: _____

  Equipment Needed: _____

- **Composting:**

  Location:_____

  Equipment Needed: _____

- **Rendering:**

  Location:_____

  Equipment Needed: _____

- **Sanitary Landfill:**

  Name:_____

  Location: _____

Best Management Practices

Please describe the best management practices that will be used to dispose of dead livestock.

Ohio Department of Agriculture

Emergency Response Plan

J. Emergency Action Plan for the Following:

1. Dike Overtopping or Eroding, or Above Ground Storage Leak.

2. Full Lagoons, Ponds, or Pits when Planned Application Areas are Currently Unavailable.

3. Spills During Delivery of Liquids to the Field.

4. Facility Fire.

5. Serious Injury to Persons.

Provide the following emergency response plans for the following:

1. Dike Overtopping or Eroding, or Above Ground Storage Leak.
2. Full Lagoons, Ponds, or Pits when Planned Application Areas are Currently Unavailable.
3. Spills During Delivery of Liquids to the Field.
4. Facility Fire.
5. Serious Injury to Persons.

CAPTURING LAND-APPLIED MANURE IN THE ROOT ZONE

Special management for tile drained land

Management strategies that capture land-applied manure in the root zone will make the nutrients available for the next crop, improve soil quality, and prevent manure nutrient and contaminant loss to the environment. The idea of capturing manure in the root zone is quite simple, but in practice it can be quite challenging as weather, soil and site-specific field conditions change.

When liquid manure is spread on tile drained land it can move within minutes to the tile lines through worm holes, root channels, cracks in the soil, and other macropores. High application rates and highly flowable liquids such as parlor wash water generally cause more problems than thicker slurries with a high solids content. "Spreading on tile drained land requires special efforts to prevent manure loss through subsurface drains" comments Dr. Tim Harrigan, MSU Extension Biosystems and Agricultural Engineering Dept.

The single most important tool in preventing manure nutrient and contaminant loss to the environment is *your* knowledge of *your* fields. When manure is applied on tile drained land, the tile outlets should be monitored before and after spreading. The best land application plans are those which are custom designed on a field-by-field basis. These plans are drawn within the context of established best management practices and fine-tuned for each field by using a process of *application*, careful *observation*, and *evaluation* of the results. *Apply* manure, *observe* what happens, and *evaluate* the effectiveness in capturing manure in the root zone where it will be a benefit to your cropping system rather than be a hazard to society.

It is very important for producers on tile drained lands to keep records. "Producers should take seriously the need to have documentation that manure is not reaching outlets", states Natalie Rector, MSU Extension Nutrient Management Agent.

EVALUATE THE RISK OF A TILE LINE DISCHARGE:

- The first step in creating a field-by-field land application plan is to evaluate each field. Any field where subsurface drains discharge into ditches that flow to surface water should be considered a high risk field and monitored carefully before and after land application.
- Although a discharge could happen in any field, farmers report that problems are more likely with high application rates and highly flowable liquids such as parlor wash water.
- High application rates increase the probability of a discharge.
- No-till fields often have more worm holes and root channels than more conventionally tilled fields. An abundance of such large pores increases the likelihood of manure loss through tile lines.
- Clay soils (soil management groups 0, 1, 1.5 and 2.5) tend to shrink and crack. Soil cracks may provide a direct route to subsurface drains.
- Slurry injection is a not sure solution. Manure has been found in tile lines within minutes of injection with sweep injectors.

ACTIONS TO PREVENT A TILE LINE DISCHARGE

- Excessive application rates increase the chance of runoff and a tile line discharge. Calibrate manure spreaders and verify that the calibrated rate is the rate that is actually applied to the field. *Based on observation and evaluation, determine the right application rate for your fields*. **On some fields, the right rate may be considerably less than the allowable rate based on manure nutrient content.**
- Use soil and water conservation practices such as crop residue management, and grassed waterways that prevent local ponding and overland flow. Local ponding can funnel waste water to tile lines through macropores.
- Use surface tillage to disrupt the continuity of worm holes, macropores and root channels and reduce the risk of manure reaching tile lines
- Do not apply manure to tile drained fields when the tiles are flowing.

- Manure with a high solids content is less likely to move off-site. Separate lot runoff, parlor wash water and other water sources from the herd manure stream and handle them separately.
- **Apply, observe and monitor tile outlets, evaluate the results, and make adjustments as needed to develop a site-specific land application plan**. Match the manure application rate with soil infiltration rates and water holding capacity.
- Make more frequent, lower rate applications rather than a single heavy application.
- Should a discharge occur, have a plan for dealing with manure that may reach tile lines, such as blocking outlets or blocking the flow once it reaches the ditch.
- Surface applications with rapid incorporation may be the best choice on land with subsurface drainage. Conservation tillage before spreading will create a rough, permeable surface. Injection may actually increase problems by placing the manure closer to the tile lines.
- Decrease the manure application rate, and avoid spreading in the rain or when rain is in the forecast.
- Read, understand and adopt the *Generally Accepted Agricultural and Management Practices for Manure Management and Utilization.* These will help build the foundation of your site-specific manure land-application plan. These points include:
    - Application rates should be based on the ability of the soil to accept and store water and the ability of plants to utilize nutrients.
    - Manure should be uniformly applied and the amount applied should be known.
    - Liquid manures should be applied in a manner that will not result in ponding or runoff to adjacent property, drainage ditches, or surface water.
    - Records should be kept of manure analysis, soil test reports, and rates of manure application for individual fields.

Tile drained lands also have the inherent concern for surface runoff of manure, nutrients and sediment. Even flat fields may have some flow during time of snow melt and spring rains. If manure is not injected or incorporated, observe a 150 foot setback from streams and ditches. Many of the above mentioned practices for avoiding manure in tile lines are also be beneficial for reducing runoff. These practices include rough tillage, residue management, cover crops, grass waterways, buffer strips, strip cropping and contour planting. Determining acceptable rates, based on both nutrient rates and the soil's ability to hold the nutrients in the root zone rely on attention to calibration and record keeping.

In the event of a manure release to surface waters, call the Pollution Emergency Alerting System 1-800-292-4706.

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